

**In The United States Patent and Trademark Office
On Appeal From The Examiner To The Board
of Patent Appeals and Interferences**

In re application of: Roger M. Ikeda
Serial No.: 10/749,029
Filing Date: December 30, 2003
Confirmation No. 9231
Art Unit: 2624
Examiner: Manucher Rahmjoo
Title: COLOR ADJUSTMENT FOR CLIPPED PIXELS

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appeal Brief

Appellant has appealed to the Board of Patent Appeals and Interferences ("Board") from the decision of the Examiner mailed November 1, 2007, rejecting Claims 1-8. Appellant respectfully submits this Appeal Brief with the statutory fee of **\$510.00**.

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Real Party-In-Interest

The real party-in-interest for this Application is Texas Instruments Incorporated, a Texas corporation, by virtue of a chain of title from the inventor to the current assignee, as shown below:

1. From: Roger Ikeda
 To: Texas Instruments Incorporated
 Assignment recorded at Reel 014882, Frame 0226,
 on December 30, 2003

Related Appeals and Interferences

The Appellant, the undersigned Attorney for Appellant, and the Assignees know of no applications on appeal that may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-9 and 11-20 are pending in this Application. Claims 1-8 were rejected and Claims 9, 11-20 were allowed in the final Office Action mailed November 1, 2007 (the "Final Office Action"). Appellant presents Claims 1-8 for appeal and sets forth these claims in Appendix A.

Status of Amendments

All amendments submitted by Appellant were entered by the Examiner prior to the mailing of the Final Office Action mailed November 1, 2007.

Summary of Claimed Subject Matter

FIGURE 2 is a block diagram of a control module 200 capable of adjusting a position of an adjustable aperture and of determining a desired gain for image data (*e.g.*, Figure 2; Page 14, Line 26 to Page 15, Line 13). In various embodiments, processor 206 determines an amount of gain to apply to the processed signal received by gain module 208. In various embodiments, gain module 208 can comprise, for example, an amplifier capable of imparting a variable gain to the processed signal. In most cases, the amount of gain applied to the processed signal depends at least in part on the scene content and the maximum number of clipped pixels. In this example, processor 206 determines the amount of gain to apply to the processed signal received by gain module 208 based at least in part on a new aperture position. Processor 206 determines the new aperture by summing the target aperture position and the “step size” for the aperture (*e.g.*, Figure 2; Page 19, Line 7 to Page 21, Line 16).

Control module 200 also includes a formatter 210 capable of formatting the amplified signal before communicating the amplified signal to a modulator. In this particular example, processor 206 identifies a number of clipped pixels based at least in part on histogram module 204. In most cases, after amplification, each of the clipped pixels will generate a color that is different from the color that was intended to be displayed. The clipped pixels generate a different color because the clipped pixels typically generate a hue that is substantially different from a hue that was intended. Moreover, the displayed color will be desaturated (*e.g.*, having washed out appearance). To minimize the impact of clipped pixels on a displayed image, formatter 210 implements a hue correction algorithm that ensures the clipped pixels are maintained in the desired hue of the intended color (*e.g.*, Figure 2; Page 21, Line 17 to Page 22, Line 2).

In various embodiments, formatter 210 has access to or includes a memory capable of storing a hue correction algorithm. In various embodiments, the hue correction algorithm is capable of correcting the hue of the clipped pixels to its originally intended hue. In those embodiments, the actual color displayed may differ from the intended color because the hue correction algorithm may adjust the saturation to be different than was intended. By correcting the hue and adjusting the saturation, the pixel will produce a portion of the image at or near the same brightness as the remainder of the displayed image. In other

embodiments, the hue correction algorithm is capable of returning the hue and the saturation of the clipped pixel to their original values, which displays the exact color intended. By returning the hue and saturation to their original values, the pixel will produce a portion of the image at a brightness that is less than the remainder of the displayed image (*e.g.*, Figure 2; Page 22, Lines 3-21).

With regard to the claims currently under Appeal, Appellant provides the following concise explanation of the subject matter recited in the claim elements. For brevity, *Appellant does not necessarily identify every portion of the Specification and drawings relevant to the recited claim elements*. Additionally, this explanation should not be used to limit Appellant's claims but is intended to assist the Board in considering the Appeal of this Application.

For example, Independent Claim 1 recites the following:

A control module for use in an image display system (*e.g.*, Figure 2; Page 14, Line 26 to Page 15, Line 13), comprising:

a gain module operable to amplify a signal received by the control module and to communicate an amplified signal having at least one clipped pixel, wherein the at least one clipped pixel is capable of generating a color having a hue that is substantially different than a hue of a color that was specified by the signal (*e.g.*, Figure 2; Page 19, Line 7 to Page 21, Line 16); and

a formatter coupled to the gain module, the formatter operable to receive the amplified signal and to adjust the hue of the color associated with the at least one clipped pixel and a saturation level associated with the color that was specified by the signal, wherein the hue of the color associated with the at least one clipped pixel is adjusted to substantially the hue of the color that was specified by the signal (*e.g.*, Figure 2; Page 21, Line 17 to Page 22, Line 21).

Grounds of Rejection to be Reviewed on Appeal

Appellant requests that the Board review the following rejections:

1. Claims 1-3 and 6-8 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,453,067 issued to Morgan ("*Morgan*"); and
2. Claims 4-5 under 35 U.S.C. 103(a) as being unpatentable over *Morgan* in view of U.S. Publication No. 2003/0194131 issued to Zhao, et al. ("*Zhao*").

Argument

For at least the following reasons, the Examiner's rejections of Claims 1-8 are improper and should be reversed.

I. Standards

A. 35 U.S.C. §102

With regard to 35 U.S.C. § 102 “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987); M.P.E.P. § 2131. In addition, “[t]he identical invention must be shown in as complete detail as contained in the . . . claim.” M.P.E.P. § 2131 citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Furthermore, “[t]he elements must be arranged as required by the claim.” *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990); M.P.E.P. § 2131.

B. 35 U.S.C. §103(a)

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. “To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. All words in a claim must be considered in judging the patentability of that claim against the prior art.” M.P.E.P. § 2143.03 (citations omitted). In addition, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed below, the claimed invention taken as a whole still cannot be said to be obvious without some reason why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

The controlling case law, rules, and guidelines repeatedly warn against using an applicant's disclosure as a blueprint to reconstruct the claimed invention. For example, the M.P.E.P. states, “The tendency to resort to ‘hindsight’ based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However,

impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.” M.P.E.P. § 2142.

The U.S. Supreme Court’s recent decision in *KSR Int’l Co. v. Teleflex, Inc.* reiterated the requirement that Examiners provide an explanation as to why the claimed invention would have been obvious. *KSR Int’l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727 (2007). The analysis regarding an apparent reason to combine the known elements in the fashion claimed in the patent at issue “should be made explicit.” *KSR*, 127 S.Ct. at 1740-41. “Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* at 1741 (internal quotations omitted).

The new examination guidelines issued by the United States Patent and Trademark Office (“PTO”) in response to the *KSR* decision further emphasize the importance of an explicit, articulated reason why the claimed invention is obvious. Those guidelines state, in part, that “[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.” *Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc.*, 72 Fed. Reg. 57526, 57528-29 (Oct. 10, 2007) (internal citations omitted). The guidelines further describe a number of rationales that, in the PTO’s view, can support a finding of obviousness. *Id.* at 57529-34. The guidelines set forth a number of particular findings of fact that must be made and explained by the Examiner to support a finding of obviousness based on one of those rationales. *See id.*

Furthermore, the M.P.E.P. explicitly states, “If [the] proposed modification would render the prior art invention being modified ***unsatisfactory for its intended purpose***, then there is ***no suggestion or motivation to make the proposed modification***.” M.P.E.P. § 2143.03, *citing In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984) (emphasis added); *see also KSR*, 127 S.Ct at 1739 (when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious).

II. The PTO has Failed to Provide the Requisite *Prima Facie* Showing of Each and Every Element as Required under 35 U.S.C. §102 in Rejecting Claims 1-3 and 6-8

The PTO rejected Claims 1-3 and 6-8 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,453,067 issued to Morgan ("*Morgan*"). Appellant traverses this rejection.

Claim 1 is allowable at least because the cited references do not teach or suggest a "formatter operable to receive the amplified signal and to adjust the hue of the color associated with the at least one clipped pixel and a saturation level associated with the color that was specified by the signal." The Final Office Action contends that block 906 of Figure 9 of *Morgan* discloses the gain module and block 912 of Figure 9 of *Morgan* discloses the formatter, but this is incorrect. *Morgan* does not teach or suggest a formatter operable to **receive** an amplified signal and **adjust** a saturation level. Instead, *Morgan* merely discloses "adjusting the gain level" **based on the saturation level**. See *Morgan*, Column 13, lines 10-14. Thus, the Final Office Action fails to point to **a formatter**, where the formatter is coupled to the gain module and is "operable to receive the amplified signal and to adjust the **hue** of the color associated with the at least one clipped pixel **and a saturation level** associated with the color that was specified by the signal," as required by Claim 1 (emphasis added). For at least these reasons, Claim 1 is allowable, as are all claims depending therefrom. Reconsideration and favorable action are requested.

III. The PTO has Failed to Provide the Requisite *Prima Facie* Showing of Obviousness under 35 U.S.C. §103 in Rejecting Claims 4-5

The PTO rejected Claims 4-5 under 35 U.S.C. § 103(a) as being unpatentable over *Morgan* in view of U.S. Publication No. 2003/0194131 issued to Zhao, et al. ("*Zhao*"). Appellant traverses this rejection.

Claim 4 is allowable at least because the cited references do not teach or suggest a formatter that "adjusts the hue of the color associated with the clipped pixel and the saturation level associated with the color that was specified by the signal to a color having a substantially similar hue and a substantially similar saturation level as the color that was

specified by the signal.” The Final Office Action concedes that *Morgan* does not disclose the above limitations. See Final Office Action, Page 5. Rather, the Final Office Action relies on Paragraphs 53, 63, and 67 of *Zhao* to teach the above limitations, but this is incorrect. *Zhao* merely discloses determining whether a pixel is in the foreground or a background of a frame by **comparing** the pixel to a second pixel in a second frame. At Paragraph 67, *Zhao* discloses adjusting a threshold for making this determination. Adjusting a **threshold** for a pixel in no way teaches or suggests **adjusting the hue of a color associated with a clipped pixel** and **adjusting the saturation level** to a substantially similar hue and saturation level that was specified by a signal.

Moreover, the Final Office Action contends that a pixel to be extracted from an image as taught by *Zhao* discloses a clipped pixel, but this contention is incorrect. As recited in Independent Claim 1 (from which Claims 4-5 depend), a clipped pixel “is capable of generating a color having a hue that is substantially different than a hue of a color that was specified by the signal.” A pixel to be extracted from an image in no way teaches or suggests a pixel that generates a color having a hue substantially different than a hue specified by a signal.

Lacking such details, *Zhao* does not teach or suggest a formatter that “adjusts the hue of the color associated with the clipped pixel and the saturation level associated with the color that was specified by the signal to a color having a substantially similar hue and a substantially similar saturation level as the color that was specified by the signal.” For at least these reasons, Claim 4 is allowable. Reconsideration and favorable action are requested.

Claim 5 is allowable at least because the cited references do not teach or suggest a formatter that “adjusts the hue of the color associated with the clipped pixel and the saturation level associated with the color that was specified by the signal to a color having a substantially similar hue and a different saturation level as the color that was specified by the signal.” The Final Office Action concedes that *Morgan* does not disclose the above limitations. See Final Office Action, Page 5. Rather, the Final Office Action relies on Paragraphs 53, 63, and 67 of *Zhao* to teach the above limitations, but this is incorrect. Again, *Zhao* merely discloses determining whether a pixel is in the foreground or a background of a

frame by **comparing** the pixel to a second pixel in a second frame. At Paragraph 67, *Zhao* discloses adjusting a threshold for making this determination. Adjusting a **threshold** for a pixel in no way teaches or suggests **adjusting the hue of a color associated with a clipped pixel** and **adjusting the saturation level** to a substantially similar hue and **different** saturation level that was specified by a signal. Lacking such details, *Zhao* does not teach or suggest a formatter that “adjusts the hue of the color associated with the clipped pixel and the saturation level associated with the color that was specified by the signal to a color having a substantially similar hue and a different saturation level as the color that was specified by the signal.” For at least these reasons, Claim 5 is allowable. Reconsideration and favorable action are requested.

Moreover, the Examiner has failed to establish a *prima facie* case for obviousness, because the Examiner has failed to provide a clear articulation of the reason(s) why the claimed invention would have been obvious to one of skill in the art. Far from an explicit, articulated reasoning with some rational underpinning, the Examiner simply offers mere conclusory speculation that “[i]t would have been made obvious to one of ordinary skilled [sic] in the art at the time the invention was made to incorporate the teachings of *Zhao* into *Morgan* to perform clipping and object segmentation and therefore accurately distinguish objects and attributes therefrom.” See Final Office Action, Page 5. According to the controlling case law, rules, and guidelines, this type of hindsight analysis, using Appellant’s claims as a roadmap for summarizing references—in this case mischaracterizing contradictory references without even citing particular portions—is impermissible. See M.P.E.P. § 2142; *KSR*, 127 S.Ct. at 1740-41; *Examination Guidelines*, 72 Fed. Reg. at 57528-29.

Furthermore, the combination of *Morgan* with *Zhao*, as proposed by the Examiner, is improper because both *Morgan* with *Zhao* explicitly teach away from the proposed combination. According to the Examiner, *Morgan* “includes a hue correction algorithm” that adjusts hue. See Final Office Action, Page 3. In contrast, *Zhao* teaches an object extraction system that “disregards hue and/or saturation components as they may fluctuate greatly between frames.” See *Zhao*, Paragraph 59. Thus, the expressed purposes of the two references in regards to hue and saturation are at odds with each other. It is improper to

combine references where the references teach away from their combination. *See* M.P.E.P. § 2145(X)(D)(2). Accordingly, the Examiner has failed to establish a *prima facie* case for obviousness and Claims 4-5 are allowable for at least these reasons, as are all claims depending therefrom.

For at least these reasons, Appellant respectfully requests that the Board reverse the Examiner's rejection of Claims 1-8.

Conclusion

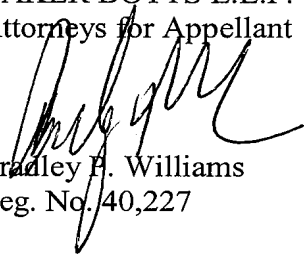
Appellant has demonstrated that, for at least the foregoing reasons, the present invention, as claimed, is clearly patentable over the references cited by the Examiner. Therefore, Appellant respectfully requests the Board to reverse the final rejection of the Examiner and instruct the Examiner to issue a Notice of Allowance of all pending claims.

The Commissioner is hereby authorized to charge the large entity fee of **\$510.00** under 37 C.F.R. §§1.191(a) and 1.17(b) for filing this Appeal Brief to Deposit Account No. 20-0668 of Texas Instruments.

Although no other fees are believed to be due at this time, the Commissioner is hereby authorized to charge any additional fees and/or credit any overpayments to Deposit Account No. 20-0668 of Texas Instruments.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Appellant


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Date: 3/28/08

CORRESPONDENCE ADDRESS:

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Appendix A: Claims on Appeal

1. (Previously Presented) A control module for use in an image display system, comprising:

a gain module operable to amplify a signal received by the control module and to communicate an amplified signal having at least one clipped pixel, wherein the at least one clipped pixel is capable of generating a color having a hue that is substantially different than a hue of a color that was specified by the signal; and

a formatter coupled to the gain module, the formatter operable to receive the amplified signal and to adjust the hue of the color associated with the at least one clipped pixel and a saturation level associated with the color that was specified by the signal, wherein the hue of the color associated with the at least one clipped pixel is adjusted to substantially the hue of the color that was specified by the signal.

2. (Previously Presented) The control module of Claim 1, wherein the formatter includes a hue correction algorithm that adjusts the hue of the at least one clipped pixel to substantially the hue of the color that was specified by the signal.

3. (Previously Presented) The control module of Claim 2, wherein the hue correction algorithm adjusts the saturation level associated with the color that was specified by the signal to a specified color.

4. (Previously Presented) The control module of Claim 1, wherein the formatter adjusts the hue of the color associated with the clipped pixel and the saturation level associated with the color that was specified by the signal to a color having a substantially similar hue and a substantially similar saturation level as the color that was specified by the signal.

5. (Previously Presented) The control module of Claim 1, wherein the formatter adjusts the hue of the color associated with the clipped pixel and the saturation level associated with the color that was specified by the signal to a color having a substantially similar hue and a different saturation level as the color that was specified by the signal.

6. (Original) The control module of Claim 1, further comprising a spatial light modulator operable to receive the hue adjusted signal.

7. (Original) The control module of Claim 6, wherein the spatial light modulator is selected from the group consisting of a digital micro-mirror device, a reflective liquid crystal modulator, and a light emitting diode modulator.

8. (Original) The control module of Claim 1, further comprising:
a memory coupled to the formatter and capable of storing data associated with a hue correction algorithm;
a video processing module coupled to the gain module and capable of processing the signal received by the control module on a frame-by-frame basis; and
a processor capable of determining a position of an adjustable aperture based at least in part on a maximum number of clipped pixels.

Appendix B: Evidence

NONE

Appendix C: Related Proceedings

The Appellant, the undersigned Attorney for Appellant, and the Assignee know of no applications on appeal that may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.